TABLE 2.—*Free-air resultant winds (meters per second) based on pilot-balloon observations made near 5 a. m. (E. S. T.) during June 1935*

[Wind from N=360°, E=90°, etc.]

Altitude (m) m. s. l.	Albuquerque, N. Mex. (1,554 m)		Atlanta, Ga. (309 m)		Billings, Mont. (1,088 m)		Boston, Mass. (15 m)		Cheyenne, Wyo. (1,873 m)		Chicago, Ill. (192 m)		Cincinnati, Ohio (153 m)		Detroit, Mich. (204 m)		Fargo, N. Dak. (274 m)		Houston, Tex. (21 m)		Key West, Fla. (11 m)		Medford, Oreg. (410 m)		Murfreesboro, Tenn. (189 m)	
	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity
	°		°		°		°		°		°		°		°		°		°		°		°		°	
Surface	335	1.0	313	0.7	305	1.9	278	1.1	264	2.6	211	1.3	180	0.2	242	1.2	238	1.5	122	1.1	135	1.8	287	0.6	195	1.3
500	------	------	292	1.6	------	------	287	6.7	------	------	241	4.3	240	4.2	256	3.7	268	3.2	181	6.8	138	3.1	295	1.2	220	3.4
1,000	------	------	270	3.1	------	------	284	3.9	------	------	249	5.0	254	6.8	251	5.9	288	4.8	179	7.3	140	2.3	296	2.1	243	5.6
1,500	------	------	267	3.9	306	3.0	278	4.9	------	------	259	5.6	262	6.9	263	6.1	296	5.9	178	6.8	149	1.4	280	0.8	250	5.8
2,000	246	1.1	260	5.0	288	3.5	274	6.8	246	3.9	264	6.4	263	8.1	264	6.8	293	7.1	188	6.0	169	1.1	296	1.8	248	6.2
2,500	275	3.6	265	5.7	281	5.1	271	7.9	245	5.1	262	7.2	263	8.9	261	7.3	284	7.6	192	4.8	184	0.7	270	3.6	255	5.9
3,000	293	5.1	261	5.2	280	7.3	267	8.7	275	6.4	267	8.5	261	9.5	263	7.3	279	9.3	190	2.9	197	0.4	257	5.2	271	5.6
4,000	299	5.3	281	6.6	279	11.7	256	7.6	287	11.0	------	------	251	11.0	288	7.0	302	13.2	194	2.0	284	0.8	263	8.2	286	3.7
5,000	281	3.4	265	6.4	290	15.2	------	------	287	12.0	------	------	------	------	282	7.8	303	15.1	273	2.0	268	3.8	256	9.8	------	------

Altitude (m) m. s. l.	Newark, N. J. (14 m)		Oakland, Calif. (8 m)		Oklahoma City, Okla. (402 m)		Omaha, Nebr. (306 m)		Pearl Harbor, Territory of Hawaii[1] (68 m)		Pensacola, Fla.[1] 24 (m)		St. Louis, Mo. (170 m)		Salt Lake City, Utah (1,294 m)		San Diego, Calif. (15 m)		Sault Ste. Marie, Mich. (198 m)		Seattle, Wash. (14 m)		Spokane, Wash. (603 m)		Washington, D. C. (10 m)	
	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity
	°		°		°		°		°		°		°		°		°		°		°		°		°	
Surface	318	0.6	222	0.4	187	3.0	177	0.7	53	2.6	316	0.8	221	1.8	152	2.5	197	0.8	275	0.3	151	1.4	109	0.6	282	0.5
500	293	4.2	277	1.8	191	5.3	225	2.1	73	6.2	238	0.8	238	5.4	------	------	237	1.2	269	1.5	227	1.5	------	------	290	3.9
1,000	278	6.1	320	5.5	214	10.8	261	4.8	67	4.4	223	2.2	255	6.6	------	------	------	------	256	2.9	236	2.5	218	2.6	289	5.0
1,500	277	6.8	338	3.9	233	8.4	269	5.5	73	6.1	218	2.7	268	7.9	166	2.3	------	------	250	4.2	229	4.0	252	3.4	279	5.9
2,000	280	8.0	330	3.2	241	8.7	278	6.6	69	5.7	271	2.0	270	9.4	264	1.0	------	------	260	5.1	233	4.8	254	4.5	269	8.4
2,500	272	8.7	318	4.7	263	7.8	283	7.3	49	3.1	298	1.4	280	8.9	285	2.5	------	------	265	5.6	249	4.9	254	5.2	271	8.9
3,000	283	7.0	307	4.6	276	5.1	296	8.5	62	3.2	313	2.2	276	8.7	290	4.6	------	------	291	4.4	255	6.3	260	6.2	267	8.5
4,000	------	------	307	6.1	303	5.5	------	------	------	------	342	3.6	------	------	275	9.0	------	------	299	8.5	272	7.7	277	8.8	278	8.7
5,000	------	------	------	------	------	------	------	------	------	------	------	------	------	------	270	14.6	------	------	303	10.7	------	------	271	6.0	------	------

[1] Navy stations.

RIVERS AND FLOODS

[River and Flood Division, MONTROSE W. HAYES, in charge]

By RICHMOND T. ZOCH

The most disastrous floods during June were those in the Missouri Basin and in the Colorado, Guadalupe, and Nueces Rivers of Texas.

Exceptionally heavy rains on May 31 and June 1 over the Republican River Valley caused a very destructive flood throughout the length of this river in both Nebraska and Kansas. The next paragraph gives an account of the damage in the State of Nebraska; following it the report of the official in charge, Weather Bureau office, Topeka, Kans., is quoted, and the effects of the flood in Kansas are described.

About 250,000 acres of land in Nebraska were flooded, forming a strip along the river throughout its length in the State (210 miles) and from 1 to 3 miles wide. One hundred and four persons were drowned, more than 1,000 families were made homeless and the buildings on more than 600 farms were washed away. Two hundred and thirteen miles of railway tracks were also washed away. This flood was the worst in Nebraska since the coming of the white man, and the total property damage has been estimated at $13,000,000. Needless to say, the highest stage of record was reached at Guide Rock, Nebr., which is the uppermost river gage maintained by the Weather Bureau on the Republican River.

Floods were caused by the same storm in the South Platte, North Platte, and Nemaha Rivers of Nebraska, but they were not serious.

Besides the flood in the Republican River, there were severe floods in the other rivers of the Kansas system in Kansas. The highest stages of record were reached at the following river gage stations: Scandia, Concordia, Manhattan, and Beloit (all in the Kansas River Basin in Kansas). Six persons were drowned by these floods. The official in charge, Weather Bureau office, Topeka, Kans., comments as follows on the floods in the Kansas River Valley:

The Republican flood the first 3 days of the month, the worst in the State, moved very rapidly and swept away nearly all bridges and many small buildings in its patch. Total area overed by it was estimated at 125 square miles, and the damage, exclusive of that to railroads, was estimated at $2,451,600, of which almost a million dollars was to highways, bridges, and buildings. A second and smaller overflow of the Republican on the 19th–21st caused little additional damage.

The Solomon River overflowed a large area in the vicinity of Beloit, reaching the record-breaking crest on the 3d and lesser crests on the 19th and 29th. Two overflows occurred at Niles. Total damage along this stream was placed at $477,575. The Smoky Hill overflowed four times at Lindsborg, reaching crests on the 5th, 16th, 21st, and 30th. At Salina it overflowed slightly on the 23d and at Enterprise on the 8th–10th. Total damaged was estimated at $263,500.

The crest of the Republican connected very closely with the crest of a rather serious overflow at the Blue at Manhattan and resulted in a stage at that place that slightly exceeded the great overflow of 1903. This crest tended to flatten out as it moved down the Kansas Valley. It approximated the 1908 highwater marks at Wamego and Topeka and fell below them at Lawrence

and points farther down. Total damage in the Kansas River Valley proper, exclusive of that to railroads, was estimated at $1,392,100, the largest single loss being to prospective crops, 112,500 acres being flooded. This loss would probably have been twice as great had not timely warnings made it possible to hold the dyke system at Topeka, preventing serious flooding of any part of the city. Damage to railroads in the Kansas Basin exceeded half a million dollars.

Concerning the floods in the Grand, Osage, and lower Missouri Rivers in May and June the official in charge, Weather Bureau Office, St. Louis, Mo., writes as follows:

Flood conditions began in the Grand about May 20. In the upper reaches there were some ups and downs between May 20 and the end of the month, but in the lower reaches, at Brunswick, flood stage was first passed on May 21 and there was no below-flood-stage reading until June 16. A peculiarity of the whole flood season in the Grand was the fact that Thompson's Fork did not have bankful stage at all, the highest stage recorded on the Weather Bureau's gage at Trenton being 19.82 feet, on June 1, which is 0.18 foot below flood stage. Gallatin had a 1-day flood (22.1 feet) on May 21, and on May 29 a fairly strong flood, with crest at 25.14 feet, which was followed by a fall, May 30 to June 1, and then the chief crest came on June 4, 32.92 feet. This was followed by generally falling until June 16, when another rise began which brought a crest of 22.56 on the 19th. It then fell rapidly.

At Chillicothe, the first flood occurred, beginning May 20 and reaching crest of 26.7 May 22; then fell to 12.0 feet by May 27. The main flood at Chillicothe began on May 28 and continued until June 7, with crest of 29.55 feet on June 3, except that there was a slight recession during May 30 to June 1. This was the highest water at Chillicothe since 1931. The nighest stage of record at Chillicothe, 1915 to date, was 32.1 feet in June 1929. (A crest of 33.65 feet is said to have been reached in July 1909.) At Brunswick, the crest, 20.5 feet on June 5, 1935, was the highest stage recorded since July, 1909, when a crest of 23.0 feet is said to have occurred. Other principal crests at Brunswick were: in 1917, 19.4 feet; in 1929, 19.4 feet; in 1931, 18.9 feet.

This was, therefore, a major flood in the Grand, and, as usual when such strong overflows occur, much damage was done to crops and land and other property. Floods come suddenly in the upper and middle reaches of the Grand. The lowlands are mostly very fertile and produce fine crops and livestock. Flood warnings are essential and are highly valued by the people, and probably no part of the St. Louis River district derives more help from flood warnings than the Grand River Valley, and this is due largely to the fine cooperation the Weather Bureau receives in the distribution of warnings.

Mr. R. W. Benecke, of Brunswick, wrote this office June 24, 1935, and in his letter he made the following statement: "We have talked with many people, farmers living in the various parts of the flooded territory, railroad men, township road men, etc., and in every case these people state that it was due entirely to the forecasts of the Bureau telling of the probable height of the water that enabled property owners to move stock and movable goods to safety, and that practically no livestock was lost, only chickens, which after being wet would chill and die."

Since the completion of the dam at Bagnell on the Osage River, a few miles above Tuscumbia, in 1931, the stages at Tuscumbia have been affected by the operations at the dam, so that the crest in the recent flood at Tuscumbia may not be strictly comparable with the records in 1929 and preceding years. But it is understood that the crest of 36.8 feet, June 4, 1935, at Tuscumbia occurred under approximately natural flow of the river, since the Lake had been filled several days before, June 4, and it is assumed that the water that came down from Osceola and entered the Lake flowed on through to Tuscumbia without hindrance. The flooded crests of 1927, 1929, and 1935, bear pretty uniform relations; that is, 30.4 at Osceola in 1927 gave 36.8 at Tuscumbia; 30.6 at Osceola in 1929 gave 36.9 Tuscumbia; and 29.4 at Osceola in 1935 gave 36.8 at Tuscumbia and 29.4 at Osceola in 1935 gave 36.8 at Tuscumbia. The crest was relatively strong at Tuscumbia in 1935, it seems, say about 1.0 foot higher, relatively, than in 1927 and 1929. There may be good reasons for this, such as distribution of rainfall, the high stage of the Missouri at the mouth of the Osage, etc., or, it might be due to the greatly widened river (the Lake) a few miles above Tuscumbia.

The distinctive feature of the flood in the lower Missouri River—light at Kansas City, moderate at Waverly, increasing strongly below the mouth of the Grand River, and still more strongly below the mouth of the Osage, and reaching a height at St. Charles and below that has been exceeded only once in the history of authentic records—is well shown by the following table.

Station	Crest	Above bankful
	Feet	*Feet*
Kansas City	23.9	1.9
Waverly	22.02	4.0
Boonville	26.71	5.7
Hermann	28.8	7.8
St. Charles	35.1	10.1

Another marked feature was the long duration of the period of above bankful stages, from Boonville to the mouth of the river, as shown by the following:

Number of days above flood stage

Year of flood	Kansas City	Waverly	Boonville	Hermann	St. Charles
	Days	*Days*	*Days*	*Days*	*Days*
1903	12	----------	13	14	----------
1908	27	----------	25	15	----------
1909	19	----------	11	11	----------
1915	28	12	26	11	----------
1917	11	6	7	8	----------
1922	0	0	0	13	15
1927	4	4	6	17	20
1929	4	9	6	8	11
1935	2	17	15	37	40

This long-continued bankful period in this flood was caused by the continued rainy weather of June 10 to 21, which did not increase the crests, but retarded the fall.

The crests of the principal floods in the lower Missouri River during the last 40 years are given in the following table:

Date	Kansas City crest	Waverly crest	Boonville crest	Hermann crest	St. Charles crest
1903, June	34.95	----------	30.9	29.5	36.80
1905, July	23.0	----------	19.9	19.6	----------
1905, September	18.6	----------	22.0	25.7	----------
1908, June	30.3	----------	26.7	25.0	----------
1909, July	27.0	----------	26.8	26.1	----------
1915, May-June	25.2	18.1	24.6	25.9	----------
1915, June	27.0	19.7	22.5	23.5	----------
1915, July	29.0	20.9	25.0	24.3	----------
1917, June	26.7	19.6	23.9	24.8	----------
1922, April	21.5	16.4	18.3	24.7	30.5
1927, April	24.8	20.63	24.0	26.8	33.0
1929, June	23.4	20.0	23.7	24.8	31.3
1935, June	23.7	22.02	26.71	28.8	35.1

The Weather Bureau service was highly valued and appreciated. Mr. C. P. Owens, engineer of maintenance, State highway department, Jefferson City, Mo., wrote this office as follows: "In estimating the money value of property saved by flood warnings, we have taken into consideration only the actual damage that might have occurred had we not had ample warning; but I would like to call your attention to another phase that undoubtedly resulted in a considerable saving to the traveling public. Due to your cooperation we were able to broadcast and forecast quite accurately road information daily. People living in various parts of the State picking up this information were, undoubtedly, able to save themselves considerable trouble and expense and travel distance. This information enabled many people to avoid flooded areas and relieved us of considerable traffic congestion that might otherwise have occurred."

The Des Moines River in Iowa experienced its worst flood since 1917. Considerable damage and inconvenience resulted and more damage would have occurred but for the Weather Bureau's warnings. At Eddyville, Iowa, 100 men used 14,000 bags of sand to raise the levee about 3 feet. Had the water risen 4 inches higher it would have passed over this barrier and flooded all but 23 houses in a town of 850 inhabitants.

The upper Mississippi River from Keokuk, Iowa, to Cairo, Ill., had its greatest flood since 1939. The flood losses were comparatively light. However, at Alton, Ill., where the Government is having a dam built, the suspension of work and immense deposit of mud caused delay and heavy expense.

The official in charge, Weather Bureau office, Little Rock, Ark., reports as follows on the flood in the Arkansas River:

Nearly all levees above Little Rock gave way, inundating large areas and causing the crest at Little Rock to be much lower than expected, while the levees below Little Rock held, causing higher stages than were expected. The crest at Little Rock was 28.2, which was 4.8 feet lower than that of 1927, while the crest at Pine Bluff was given as 32.2 which is only 0.2 foot lower than the crest of 1927.

Heavy rains over the St. Francis Basin caused a flood there, with the highest stage of record for this time of the year. Undoubtedly still higher stages would have occurred if all the levee breaks caused by previous floods this year had been repaired.

There was a moderate flood in the Upper Trinity River in Texas. This flood was most severe on the East Fork of the Trinity River, where levees were overtopped and broken in many places.

The official in charge, Weather Bureau office, San Antonio, Tex., makes the following statements on the floods in the Colorado, Guadalupe and Nueces Rivers in Texas:

Heavy to excessive rains over the watersheds of the Colorado, Guadalupe, and Nueces Rivers from June 12 to 16 caused severe floods in these river systems. The highest stages known occurred at Marble Falls, Austin, and Smithville on the Colorado; and at New Braunfels and Victoria on the Guadalupe; also at Cotulla on the Nueces.

Timely warnings were issued for these floods, and large amounts of property saved thereby. Matured crops were gathered, livestock moved to high ground, and furniture, farm implements, and machinery were stored in high places. However, losses were heavy, especially to bridges and highways. Thousands of pecan trees were lost, and many farm buildings entirely disappeared. Eight people are known to have been drowned.

There were widespread rains on June 13 in the lower Rio Grande Valley. The heaviest 24-hour fall of record occurred at Del Rio, Tex., and a very rapid rise in the Rio Grande followed. The Rio Grande had previously reached the flood stage at Mercedes and Brownsville. The property damage was not heavy, but four persons were drowned when their home was washed away.

The floods in the colorado system (draining into the Gulf of California) and on the Pacific slope were of minor consequence.

Practically all the floods in the Mississippi system which have not been specifically mentioned above, but which are shown in the accompanying table, caused damage varying from slight to serious. However, even where extensive damage occurred no unusual feature was presented. Comments on the flood of June in the lower Mississippi River must be postponed pending its subsidence.

Table of flood stages during June 1935

[All dates are in June unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM					
Upper Mississippi Basin	*Feet*			*Feet*	
Rock: Moline, Ill.	10	30	30	10.0	30
Iowa: Iowa City, Iowa	8	26	29	8.6	26
Skunk: Augusta, Iowa	15	2	2	15.1	2
Des Moines:					
Tracy, Iowa	14	3	3	15.2	3
		19	20	15.6	20
		26	July 7	20.1	28
Ottumwa, Iowa	9	3	4	10.0	4
		19	21	10.4	20
		27	July 8	15.4	28

Table of flood stages during June 1935—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
Illinois:	*Feet*			*Feet*	
Havana, Ill.	14	May 4	12	20.0	May 17
		19	(1)	15.3	July 6, 7
Beardstown, Ill.	14	May 3	16	22.4	May 17
		19	(1)	16.0	July 1, 2
Bourbeuse: Union, Mo.	12	23	24	16.0	23
		28	29	13.1	29
Meramec:					
Steelville, Mo.	12	21	21	20.4	21
		26	26	23.3	26
Pacific, Mo.	11	10	12	15.7	11
		21	26	21.5	24
Valley Park, Mo.	14	11	13	18.5	12
		21	26	24.8	24
		28	July 1	22.2	30
Mississippi:					
Keokuk, Iowa	12	2	2	13.9	2
Quincy, Ill.	14	3	5	16.0	3
Hannibal, Mo.	13	3	6	16.2	4
Louisiana, Mo.	12	7	7	15.9	4
		21	22	12.0	21, 22
Grafton, Ill.	18	2	13	22.6	7
Alton, Ill.	21	May 31	16	29.0	7
		23	26	22.3	25
St. Louis, Mo.	30	4	15	33.5	8, 9
Chester, Ill.	27	2	19	33.4	9
		21	27	29.1	26
Cape Girardeau, Mo.	32	4	19	36.4	11
		22	28	32.6	22, 23
Missouri Basin					
South Platte: North Platte, Nebr.	5	3	4	6.1	3
Saline: Tescott, Kans.	25	1	1	25.6	1
		3	6	29.4	3
		29	30	29.2	30
Solomon:					
Beloit, Kans.	18	1	5	34.5	3
		19	26	28.4	19
		28	29	21.0	29
Niles, Kans.	24	3	9	29.5	7
		24	25	26.2	25
Smoky Hill:					
Lindsborg, Kans.	21	5	5	21.5	5
		16	16	21.2	16
		20	22	25.3	21
		29	30	25.9	30
Salina, Kans.	20	23	23	20.5	23
Enterprise, Kans.	26	8	10	29.1	9
Republican:					
Guide Rock, Nebr.	11	1	3	24.0	1
		18	19	12.5	19
Scandia, Kans.	10	1	4	18.2	2
		19	20	11.5	19
Concordia, Kans.	8	1	5	17.0	2
		20	20	10.4	20
Clay Center, Kans.	12	1	5	25.7	3
		21	22	17.3	21
Blue:					
Beatrice, Kans.	16	2	2	16.7	2
Blue Rapids, Kans.	20	2	5	29.8	3
Randolph, Kans.	19	1	5	25.2	3
Kansas:					
Ogden, Kans.	18	2	7	28.0	3
Manhattan, Kans.	17	2	8	27.9	4
Wamego, Kans.	16	3	7	23.8	4
Topeka, Kans.	21	4	7	27.6	5
Lawrence, Kans.	18	5	7	22.1	6
Bonner Springs, Kans.	21	6	7	23.0	6
Grand:					
Gallatin, Mo.	20	May 28	5	32.9	4
		19	20	22.6	19
Chillicothe, Mo.	18	May 28	7	29.6	3
		17	21	26.9	20
		28	28	19.0	28
Brunswick, Mo.	12	May 21	15	20.5	5
		20	24	15.0	22
		27	July 6	14.6	July 4
Osage:					
Quenemo, Kans.	30	1	4	38.7	3
Ottawa, Kans.	24	1	5	32.0	3
La Cygne, Kans.	21	May 30	8	27.2	4
Osceola, Mo.	20	May 29	18	29.4	9
Tuscumbia, Mo.	25	May 29	19	36.8	4
		21	22	30.4	22
		27	27	30.4	27
St. Thomas, Mo.	20	May 29	23	32.9	4
		27	30	27.2	27
Missouri:					
Kansas City, Mo.	22	5	8	23.9	7
Waverly, Mo.	18	May 29	14	22.0	8
		29	July 4	18.9	3
Boonville, Mo.	21	May 30	13	26.7	5
Hermann, Mo.	21	May 30	25	28.8	6.7
		27	July 5	23.8	29
St. Charles, Mo.	25	May 30	July 8	35.1	8

Table of flood stages during June 1935—Continued

River and station	Flood stage	Above flood stages—dates From—	Above flood stages—dates To—	Crest Stage	Crest Date
Ohio Basin					
	Feet			Feet	
Barren: Bowling Green, Ky	20	22	24	25.9	23
Green:					
Lock No. 6, Brownsville, Ky	28	22	26	34.5	24
Lock No. 4, Woodbury, Ky	33	21	28	43.7	24
Lock No. 2, Rumsey, Ky	34	22	July 4	40.5	29
Ohio:					
Dam No. 53, near Mound City, Ill	42	May 17	1	46.3	May 26, 27
Cairo, Ill	40	May 13	2	45.9	May 26
		10	14	40.8	12
		25	July 1	42.0	28
White Basin					
Black:					
Poplar Bluff, Mo	14	23	24	15.7	23
		28	29	14.9	28
Black Rock, Ark	14	2	(1)	22.4	19
White:					
Cotter, Ark	21	5	5	22.0	5
		8	9	23.5	9
		18	21	25.5	20
Calico Rock, Ark	18	3	6	23.1	3
		8	10	25.6	8
		17	21	28.4	18
Batesville, Ark	23	4	12	30.0	9
		18	22	32.4	19
Newport, Ark	26	6	15	29.7	11
		18	26	31.0	21
Georgetown, Ark	21	May 7	July 9	27.7	24, 25
Clarendon, Ark	26	May 11	(1)	32.0	28, 29
Arkansas Basin					
Little Arkansas: Sedgwick, Kans	18	1	1	18.1	1
Cimarron: Perkins, Okla	11	21	21	14.4	21
Verdigris: Sageeyah, Okla	35	3	10	40.0	6
		18	21	37.1	20
Cottonwood: Emporia, Kans	20	4	4	20.0	4
Neosho:					
Neosho Rapids, Kans	22	3	5	25.8	4
LeRoy, Kans	23	2	6	24.9	2
Iola, Kans	15	2	5	17.6	3
Chanute, Kans	20	1	8	24.5	1
		17	17	21.5	17
Parsons, Kans	22	1	10	27.4	1
		17	18	22.4	1
Oswego, Kans	17	1	10	25.0	2
		13	13	17.6	13
		16	19	20.4	18
Wyandotte, Okla	23	7	9	27.7	8
Pensacola, Okla	24	7	10	24.1	8
Fort Gibson, Okla	22	1	11	31.1	9
		17	23	28.0	18
North Canadian:					
Canton, Okla	6	2	2	6.0	2
Yukon, Okla	8	3	4	8.7	4
Poteau: Poteau, Okla	21	17	22	39.0	18
Petit Jean: Danville, Ark	20	17	22	30.0	18
Arkansas:					
Wichita, Kans	9	2	4	9.8	3
Arkansas City, Kans	15	3	6	17.6	5
Webbers Falls, Okla	23	2	12	28.8	9, 10
		17	24	29.9	18
Fort Smith, Ark	22	2	13	29.0	9
		17	26	34.4	19
Van Buren, Ark	22	2	13	29.4	10
		17	26	34.3	19
Ozark, Ark	22	5	6	22.6	6
		9	12	24.7	11
		17	26	31.1	21
Dardanelle, Ark	22	4	14	26.0	11
		17	27	29.5	21
Morrilton, Ark	20	4	15	24.9	12
		17	28	29.2	22
Little Rock, Ark	23	11	14	23.7	12
		18	28	28.2	23
Pine Bluff, Ark	25	7	15	26.4	13, 14
		19	July 1	32.2	24
Red Basin					
Ouachita:					
Arkadelphia, Ark	17	17	20	24.0	19
Camden, Ark	26	20	26	33.0	23
Black: Jonesville, La	50	May 9	(1)	51.9	May 22–29
Little: Whitecliffs, Ark	25	20	28	28.6	22
Sulphur:					
Ringo Crossing, Tex	20	16	24	31.4	17
Naples, Tex	22	2	12	28.0	7
		19	30	29.7	21
Red:					
Arthur City, Tex	27	17	18	31.7	17
Index, Ark	25	18	27	30.7	22
Fulton, Ark	25	18	30	34.8	24
Grand Ecore, La	33	May 11	12	38.0	May 31
		26	(1)	(1)	(1)
Alexandria, La	32	May 8	(1)	41.3	4

Table of flood stages during June 1935—Continued

River and station	Flood stage	Above flood stages—dates From—	Above flood stages—dates To—	Crest Stage	Crest Date
Lower Mississippi Basin					
Big Lake Outlet: Manila, Ark	10	18	(1)	13.1	28, 29
St. Francis:					
Fisk, Mo	20	13	29	23.8	24
St. Francis, Ark	18	May 26	4	20.8	May 27
		17	(1)	22.8	21
Yazoo: Yazoo City, Miss	29	Mar. 5	5	36.3	Apr. 11
Mississippi:					
New Madrid, Mo	34	May 19	1	36.7	27, 28
Helena, Ark	39	May 18	(1)	45.0	3
Arkansas City, Ark	42	May 22	(1)	48.4	27–July 1
Greenville, Miss	36	May 21	(1)	43.4	30–July 1
Vicksburg, Miss	43	8	(1)	(1)	(1)
Natchez, Miss	46	1	(1)	(1)	(1)
Angola, La	45	May 31	(1)	(1)	(1)
Baton Rouge, La	35	May 30	(1)	(1)	(1)
Donaldsonville, La	28	5	(1)	(1)	(1)
Reserve, La	22	8	(1)	(1)	(1)
Atchafalaya Basin					
Atchafalaya:					
Simmesport, La	41	4	(1)	(1)	(1)
Melville, La	37	May 20	(1)	(1)	(1)
Atchafalaya, La	22	Mar. 15	(1)	(1)	(1)
WEST GULF OF MEXICO DRAINAGE					
Sabine: Logansport, La	25	1	1	25.0	1
Neches: Beaumont, Tex	7	1	2	7.4	1
Elm Fork: Carrollton, Tex	6	15	18	9.3	16
Trinity:					
Dallas, Tex	28	15	30	34.0	18
Trinidad, Tex	28	18	30	40.6	23
Long Lake, Tex	40	22	(1)	43.4	26
Liberty, Tex	25	May 6	17	26.7	7
Colorado:					
Marble Falls, Tex	21	15	16	[2] 39.5	15
Austin, Tex	21	15	16	42.0	15
Smithville, Tex	25	16	19	40.7	16
Columbus, Tex	20	17	21	38.5	18
Wharton, Tex	26	17	23	38.2	20
Guadalupe:					
New Braunfels, Tex	20	15	16	35.0	15
Gonzales, Tex	20	15	19	32.8	17
Victoria, Tex	21	2	5	25.7	3
		15	22	29.6	20
Nueces:					
Cotulla, Tex	15	17	23	31.0	19
Three Rivers, Tex	37	3	3	37.0	3
		6	8	39.8	7
		13	18	44.7	15
		20	28	43.8	23
Rio Grande:					
Espanola, N. Mex	7	17	18	7.0	17, 18
Del Rio, Tex	15	14	15	23.6	14
Eagle Pass, Tex	16	15	15	33.2	15
Laredo, Tex	27	16	16	33.0	16
Riogrande, Tex	21	17	18	27.4	18
Hidalgo, Tex	21	18	20	22.8	19
Mercedes, Tex	21	10	10	21.0	10
		17	21	22.5	20
Brownsville, Tex	18	3	7	19.0	4
		10	11	19.3	10
		14	22	19.5	18
GULF OF CALIFORNIA DRAINAGE					
Eagle: Eagle, Colo	5	12	17	5.9	15
Roaring Fork: Carbondale, Colo	5	10	17	6.6	15, 16
		20	22	5.4	21
Gunnison:					
Sapinero, Colo	19	13	16	19.5	15
Delta, Colo	9	7	18	10.9	15, 16
		21	22	9.2	21
San Juan: Farmington, N. Mex	7	16	17	7.2	17
Colorado: Grand Junction, Colo	11	15	17	11.8	15
PACIFIC SLOPE DRAINAGE					
San Joaquin Basin					
Kings: Piedra, Calif	10	4	8	10.4	
Columbia Basin					
Columbia: Vancouver, Wash	15	May 29	27	17.9	11, 12

[1] Flood continued into July.
[2] This is the highest gage reading. The gage washed away, and it is estimated that the river reached 50.0 feet.